

Concise and compelling talks
by graduate students

Research Matters

CELEBRATING IDEAS & DISCOVERIES

Monday, April 27, 2026

4-5:30 p.m.

**Salomon Center for Teaching,
De Ciccio Family Auditorium**



Graduate School
BROWN UNIVERSITY

Research Matters

CELEBRATING IDEAS & DISCOVERIES

The Graduate School is delighted to present Research Matters. Research Matters celebrates graduate student research, offering a public forum for research communication and conversations across the disciplines.

With short talks aimed at a general audience, Research Matters showcases exceptional graduate student scholarship. The first Research Matters event in September 2014 was part of Brown's 250th Anniversary Fall Celebration.

Each year, we continue the tradition of celebrating the contributions of our graduate students. We are delighted to showcase academic excellence and the advancement of knowledge.

Our speakers range across disciplines, from musicology and ethnomusicology, to pathobiology, to mathematics. They include students early in their studies and those about to receive their degrees. After a general call for nominations, our student speakers were selected from among 20 semifinalists to present their research today.

Our speakers are eager to showcase their research with the broader community.

We hope you enjoy the talks!

David P. Lindstrom

Dean of the Graduate School

Vanessa L. Ryan

*Senior Associate Dean of
Student Development*

Byrd McDaniel

*Assistant Dean of
Student Development*

INTRODUCTIONS | 4-4:10 P.M.

Vanessa L. Ryan

Organizer and Senior Associate Dean of
Student Development, Graduate School

David P. Lindstrom

Dean, Graduate School

SESSION ONE | 4:10-4:50 P.M.

TALKS

Brianna Hoegler

*How Phytoplankton Shape the
Ocean Carbon Cycle*

Anthony Englert

*Visualizing Dark Matter With
Gravitational Lensing*

Alice Xia

*The Hidden Maps Behind
Strategic Gossiping*

Lulu Schulz

Ancient Viral Ghosts in Alzheimer's Disease

Kimberly S. Meza

PIM-Pointing a TRAIL for Cancer Cures

Devanney Haruta

The Meaning of Musical Instruments

BREAK | 4:50-5 P.M.

SESSION TWO | 5-5:30 P.M.

TALKS

Ella Wilson

The Geometry of Bubbles

Gavin Lu

*Attacking Titan Cells in Therapy-Resistant
Cancer*

Chandler Morris

Evolution of El Niño-Southern Oscillation

Melanie Ortiz Alvarez de la Campa

Childhood Stress Shapes the Microbiome

Heather Valera

*Preventing Dementia: The Ovary-Brain
Connection*

Speakers



Melanie Ortiz Alvarez de la Campa

Childhood Stress Shapes the Microbiome

Ph.D. Candidate in Pathobiology

Melanie is a first-generation, Puerto Rican scientist receiving a Ph.D. in pathobiology from Brown University this May, where they research the gut-brain axis as a therapeutic target for anxiety. They have received the NSF Graduate Research Fellowship, Archambault Teaching Award and others. In their free time, Ortiz Alvarez de la Campa is the co-founder of Ciencia Pa' Todes, a Caribbean-based initiative that delivers bilingual science communication to thousands through documentaries and a children's book. They use their passion for art and writing to create long-lasting impact and revolutionize the way we contextualize science.



Anthony Englert

Visualizing Dark Matter With Gravitational Lensing

Ph.D. Candidate in Physics

Anthony Englert is in the final year of his Ph.D. in physics at Brown University. His research concerns the nature of galaxy clusters, particularly the relation between the luminous and dark matter in merging clusters. During his time at Brown, Englert discovered an “optical bridge” of stars in a nearby galaxy cluster, providing new insights into the cluster's dynamical history. Englert has also partnered amateur astronomers to organize outreach events and engage with local communities in Providence to encourage scientific thinking through astronomy.



Devanne Haruta

The Meaning of Musical Instruments

Ph.D. Candidate in Musicology & Ethnomusicology

Devanne Haruta is a music researcher working at the intersection of musicology and ethnomusicology. Her research investigates the relationships between humans, musical instruments and the natural environment. She is passionate about making music scholarship accessible to public audiences, and has written podcasts, curated museum displays and worked with nonprofit music organizations including Tippet Rise Art Center in Montana. Her outdoor installation “Piano (de)composition,” located on Brown's campus, has been featured by the Providence Journal and the NBC Nightly News with Lester Holt. Haruta is trained as an oboist and currently plays recorder with the Rhode Island Recorder Society.



Brianna Hoegler

How Phytoplankton Shape the Ocean Carbon Cycle

Ph.D. Candidate in Earth, Environmental and Planetary Sciences

Brianna Hoegler is a fourth-year Ph.D. candidate who is excited to learn about Earth's past oceans — namely, how the surface ocean and marine ecosystems responded to past climate conditions. Hoegler began her scientific career from an early age, attending the Marine Academy of Technology and Environmental Science for high school before completing her undergraduate studies in geosciences at the University of Arizona. There, she conducted research using tropical lake sediments to reconstruct past El Niño events. In her spare time, Hoegler enjoys hiking, reading and cooking, and she is currently serving as the conference co-chair for the LGBTQ+ STEM nonprofit oSTEM.



Gavin Lu

Attacking Titan Cells in Therapy-Resistant Cancer

Ph.D. Candidate in Biomedical Engineering

Gavin Lu is a third-year Ph.D. candidate mentored by Michelle Dawson. He has a broad interest in cancer biology, and his current research focuses on therapy-resistant giant cancer cells, studying their physical structure and metabolic activities to identify novel treatment options and improve the treatment landscape of ovarian cancer. Lu grew up in China, and received a bachelor's degree from Johns Hopkins University. Aside from research, Lu also has a great passion for science communication, mentorship and community outreach.



Kimberly S. Meza

PIM-Pointing a TRAIL for Cancer Cures

Ph.D. Candidate in Pathobiology

Kimberly S. Meza is in the final year of her doctoral studies. Meza's dissertation identifies novel actionable therapeutic targets in kidney cancer to improve current treatment strategies. As a first-generation Xicana and college graduate, she earned her bachelor's degree from Barnard College of Columbia University and continues to advocate passionately for access to higher education and opportunities for underrepresented communities. Meza's long-term goal is to become an independent principal investigator contributing to the understanding of cancer biology and training the next generation of scientists.



Chandler Morris

Evolution of El Niño-Southern Oscillation

Ph.D. Candidate in Earth, Environmental and Planetary Sciences

Chandler Morris is a third-year Ph.D. candidate in the Department of Earth, Environmental and Planetary Sciences and the Institute at Brown for Environment and Society. Her research combines coral-based paleoclimate records, modern instrumental observations and climate models to characterize tropical Pacific climate variability and trends. She earned a B.A. in environmental science from Columbia University, where she worked as a research assistant at Lamont-Doherty Earth Observatory. Prior to starting her Ph.D. at Brown, she worked as a risk analyst at Moody's Analytics, generating climate risk metrics for private and public sector clients. Morris is passionate about science communication and applying scientific research to actionable solutions for climate change impacts.



Lulu Schulz

Ancient Viral Ghosts in Alzheimer's Disease

Ph.D. Candidate in Molecular Biology, Cell Biology and Biochemistry

Lulu Schulz is a fourth-year Ph.D. candidate in the lab of Bess Frost, studying the cellular and molecular mechanisms underlying Alzheimer's disease. Her research focuses on endogenous retroviruses, ancient virus-like sequences embedded in the genome, and how their activation in the aging brain may contribute to neurodegeneration and neuroinflammation. She is particularly interested in their capacity to form virus-like particles and their potential as therapeutic targets. Schulz also runs a science communication platform on TikTok reaching hundreds of thousands of viewers, bridging science, policy, innovation and public engagement.



Heather Valera

Preventing Dementia: The Ovary-Brain Connection

Ph.D. Candidate in Molecular Biology, Cell Biology and Biochemistry

Heather Valera is a third-year Ph.D. candidate working in the lab of Kathryn Grive. Her dissertation research seeks to understand the ways in which female reproductive organs can cause systemic effects on brain and bodily health. She hopes that her research will encourage people with ovaries to consider their reproductive health just as paramount to bodily well-being as other organ systems. Originally from the Midwest, Valera completed her undergraduate studies at Northwestern University, where she earned an NSF Graduate Research Fellowship. Outside of the lab, Valera enjoys creating illustrative art, cooking, gardening and playing videogames.



Ella Wilson

The Geometry of Bubbles

Ph.D. Candidate in Mathematics

Ella Wilson is a third-year Ph.D. candidate in the mathematics department. Her research is within the field of geometric analysis and focuses on gluing constructions of surfaces with prescribed mean curvature (one example includes bubbles in motion). She is committed to making math accessible for all. At Brown, she organizes the Math Resource Center, and she also works with Girl's Angle and GoGetMath@ICERM, bringing joy for mathematics to middle and high school students. Wilson earned her B.A. in mathematics from Kenyon College.



Alice Xia

The Hidden Maps Behind Strategic Gossiping

Ph.D. Candidate in Cognitive and Psychological Sciences

Alice Xia is a fifth-year Ph.D. candidate in the FeldmanHall Lab. Her research examines how people make adaptive inferences in complex social environments. Drawing on behavioral and computational approaches, she investigates the mental processes that unfold when individuals make rapid judgments about social relational structure, in both controlled laboratory networks and real-world social contexts.

MASTER OF CEREMONIES

Gray Babbs

Ph.D. Candidate in Health Services Research

Gray Babbs uses epidemiologic and econometric methods to identify barriers to high-quality care for individuals with chronic diseases and mental health conditions. His research evaluates the impact of Medicare and Medicaid policies on population health, with a particular focus on transgender, nonbinary and intersex communities. After earning his Ph.D. from Brown, he will join the Department of Health Care Policy at Harvard Medical School as a postdoctoral research fellow.

COORDINATING TEAM AND SELECTION COMMITTEE MEMBERS

Vanessa L. Ryan

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Senior Event Manager, Event Strategy and Management

Melissa J. Simon

Director of Business Development, Brown Technology Innovations

Anthony Bruno

Ph.D. Candidate in Psychology

THANKS

We are grateful to the many people who help make this possible. We thank those of you who nominated students to be speakers. We are grateful to the members of the selection committee, especially for their helpful feedback on speaker presentations. Finally, we thank the audience and those who helped promote this event. Please help us continue to share recordings of these talks after the event.

The event will be recorded and livestreamed by Brown Media Services with support provided by New England Showtime Productions.

**Learn more about Research Matters
and view the 2026 videos at**

graduateschool.brown.edu/research-matters

